Frank G. Carpenter Visits the Capital of Uruguay

Says Montevideo Is a Rich, Live and Up-to-Date City—Its Seaside Resorts and How They Compare With Atlantic City and Newport—The Casino Where Gambling Is Conducted for Charity and Thousands of Dollars Change Hands in a Night. The City Has Shape of a Great Horn.

Montevideo's Zoological Gardens and Its Cemetery for Dogs, Lions and Monkeys—Some of the Famous Public Buildings—A Look at the Bank—A Country Where a Dollar Is Worth 3 Cents More Than Our Own — Lottery a Public Institution. The Business Section of the City.

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MONTEVIDEO, Uruguay.

COME with me and take a look at the capital of Uruguay. It is the social, political, financial and industrial center of this republic and its 1,300,000 population. It is in fact the heart and soul of the country, the dynamo that keeps Uruguay moving. The city is one of the well-to-do and the rich. It has beautiful houses and it has stores that will compare with those of Cincinnati or Buffalo, either of which is about the same size. The town has all modern improvements. Its streets are like day under its thousands of electric light globes, and its electric car lines carry millions of passengers every year. The town is paved with Belgian block and with asphalt. The most of its streets cross one another at right angles, and the older ones are narrow rather than wide. In addition there are wide boulevards which extend far out into the country. There are more than a dozen public squares or plazas in the heart of the city, and pleasure grounds, parks and bathing resorts on the ocean outside.

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Montevideo lies on the ocean. One side of it is bathed by the Atlantic and the other by the great estuary known as the Rio de la Plata. The city is in the shape of a great horn, which juts out from the mainland into these waterways. The bay is on the Rio de la Plata side in the inside curve of the horn, and the ocean rolls up its surf just over the way. The lower part of the city makes me think of Manhattan Island, save that it has not the sky-scrapers. The horn here is so narrow that you can stand in the middle streets and see the ocean on one side and the river on the other. Nearly every part of the city slopes toward the river, and the frequent rains wash the town clean. According to the statistics the place is one of the healthiest among all the world's cities and it stands high in every department of sanitary work.

We shall start on our trip at the Plaza Independencia. This is in the heart of the downtown business section. It covers something like ten acres and it is filled with gardens of shrubs, flowers and palm trees. Upon it face the government house, where the president has his offices, and the national museum. There are stores back of the arcades that run around its sides, and the great Solis Theater is off at the right. Over the way is the street called Sarandi, that runs along the roof of the tongue of rock down to the ocean, and on the opposite side of the square is the Boulevard Eighteenth of July, that follows the roof of the tongue in the other direction, dividing the business part of the city almost in half. This boulevard is one of the finest in the city and it has many large stores. It is named after the date on which the constitution of the republic was adopted, and it is destined to be the chief business street of the capital.

Today there is more trade upon the upper part of the Sarandi than in any other section of the city. I refer especially to the narrow extension of that street which joins the Plaza Independencia to the Plaza Constitucion. This is the fashionable street and a fashionable shopping crowd walks through it every afternoon from 5 o'clock until dark. In this respect it corresponds with the Calle Florida of Buenos Aires, although the crowds are much fewer and the promenade consists of a very few blocks. Nevertheless, here are the fine jewelry shops, the great millinery establishments, the art stores and other places having beautiful goods. The price marks are on the articles and I can see that most of them are far above their cost in our country.

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A look at the crowd on the streets will show you the reason. The people are rich and they have money to spend. They are quite as well dressed as those who parade F street in Washington about 5 o'clock every afternoon and almost as gay as those of Fifth avenue in New York. Indeed, the men are more so. They look as though they had just come out of a bandbox, and as for the women, they trot along on high heels, many of them clad in costumes from Paris. The Montevideans are very polite. There is a great tipping of hats and of bowing and the etiquette of the street is strictly preserved. The men always walk next the curb, and the higher the rank, the nearer the person to the walls of the stores.

Among the other fine streets of Montevideo are the Avenida de Brazil that leads out to Pocitos, the wide boulevard of Gen. Artigas, which is divided by beautiful gardens from one end to the other, and the great drive that skirts the sea near the Park Urbano and about the Rambla de los Pocitos.

The latter places are the great seaside resorts of the city. They have magnificent hotels looking out on the ocean, and people come here from all parts of the River Plate basin as their summer resort. The hot season is in the midst of our winter, and during it the great hotels are thronged with a fashionable crowd from interior Uruguay and Brazil and even from Rio de Janeiro and Buenos Aires and other cities of Argentina. The living here is somewhat cheaper than Mar del Plata, the Atlantic seaside resort of the Argentines; and Montevideo is also nearer Buenos Aires, a comfortable ride on the steamer taking you from one place to the other. The beach here is better, although the company, I judge, is not quite so exclusive.

I wish I could show you these Montevideo seaside resorts. They are nothing like as large as those of our country at Cape May, Asbury Park or Atlantic City, but the improvements are far more substantial and where we walk upon boards, these people have well decorated promenades of cement. The hotels are right on the sea without ragged boarding houses surrounding them, and there are no merry-go-rounds, candy-criers and noisy peddlers to offend the man who wants peace. Indeed, everything is quietly done and that in a style that would hardly suit a North American crowd.

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At Pocitos the dressing and undressing are done in little bathhouses on wheels. These stand in rows on the edge of the pier, and the bathers enter them and there change their clothes. There is a house for each person. You walk up steps at the back to get in; and when you have your bathing suit on, you signal the attendant. He thereupon hitches two mules to your house and drags it down into the water so that you may step in the most proper way right into the sea. The house is then dragged back, to return again when you are through with your swim. These houses are about three feet wide, six feet long and six feet high. They look like gigantic dog kennels on wheels. There are hundreds of them for hire, and you can get a bathing suit and the service for something like 25 cents.

There is very little bathing together of the sexes at Montevideo. Families go in and sport about in the water, but the young lover does not dare to propose taking his sweetheart out for a swim, nor do the girls and boys lie about on the sand and make love. Indeed, the summer girl here flocks by herself, and the summer boy walks along on the opposite side of the esplanade. The two have to be satisfied with making goo-goo eyes at one another, and if they do more there is straightway a scandal. They have other queer customs and queer ideas as to propriety and etiquette in love making; but of those I will write in the future.

Ramirez, which is the bathing place adjoining Urbano Park, is more democratic than Pocitos, and it is frequented during the day and up to midnight in the height of the season. There is another bathing place at Capurro on the west of the town, about which they have a beautiful park that is converted in the winter into a skating rink, where social Montevideo takes part. The view here is fine; one can see the port and whole town from over the sea. The fashionable days are Mondays and Fridays, and also Sunday afternoons, when there is always a concert.

THE LITTLE BATH HOUSES ON WHEELS.

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Outside Pocitos the biggest resort is the Parque Urbando, where are the Parque Hotel and also the Casino. The latter is a gambling resort after somewhat the same plan as that of Monte Carlo. It runs its regular tables throughout the summer, and the majority of the men who reside at the hotels may be found betting upon the roll of the marbles in the roulette wheel or upon the croupier's turn-up of the cards. A large proportion of the visitors are rich estancieros from the River Plate basin, and the amounts won and lost are enormous. The bank gets a profit which is perhaps 10 per cent of all that goes over the table, and within a month and a half its gains were more than $186,000. If I am right in my 10 per cent conjecture this would mean that almost $2,000,000 were played on the tables during that time. The gambling house is licensed by law and the owners receive only 50 per cent of the profits, while the balance goes to the city and to certain charities. The city gets 35 per cent and the charities fifteen. In other words, of that $186,000 the share of the hotel was $93,000, while that of the city was about $65,000 and $28,000 went to charity. Indeed, these people seem to be trying to tickle the Lord Almighty into pardoning them, by giving a profit of their gambling business to benevolent work.

They do the same with the lottery, which is another public institution backed by the government. It is known as the lottery of the Hospital of Charity and its receipts are enormous. Within thirty years, from 1878 to 1909, it brought in more than $14,000,000 to charity, and this represents 70 per cent of the earnings. Of the balance 25 per cent goes to the administration and the pay of the commission of charity. In 1909 the receipts were $800,000.

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But I must not leave the pleasure parks of Montevideo without a description of its zoological garden. This is called the Villa Dolores, and it belongs to a rich citizen who charges admission except on certain days of the week, the money going to charity. The garden is beyond the wide Boulevard of General Artigas, in what might be called the villa section of Montevideo. It covers perhaps ten or fifteen acres which is cut up into wide walks along which the quaint houses and cages of the animals stand. At the entrance are bronze statues of animals and there are lions, tigers and wolves in metal scattered about here and there among the real beasts. Here a stone sheep apparently feeds upon the green grass near lambs that bleat at them and there a stone dog sits on a rock in the bed of a lake while stone and iron birds are scattered around among their live fellows of the animal kind. The zoo has many ostriches brought from the pampas and African ostriches in cages beside them. It has lions and tigers and elephants and also cows, goats, sheep and dogs.

The live animals are, however, comparatively few in number for a large city institution of this kind. But there is one respect in which this zoo is different from any others of the world. This is in its cemetery for dead animals. The owner is so much in love with his beasts that when a favorite one dies he puts up a monument to it and he has one part of the garden shut off from the rest by a wrought iron fence inside of which lie his favorite dead. Each beast has its own grave and many of the graves have baskets of flowers and wreaths of flowers lying upon them. Over some of the graves are monuments of the dear departed. One, for instance, represents two monkeys cut out of stone. They are dressed in the clothes of men and women and they stand upon a granite pedestal, apparently discussing the future. At the foot of this monument is a wreath of immortelles and it rises out of a garden of roses. Behind it on another pedestal of white marble is the bronze statue of a poodle dog, with its name, Ali, and the date of its death carved in the stone. A little further over is the grave of a parrot whose name was evidently Pedro, for that is the inscription on the stone pedestal. A likeness of the bird is shown by a stone parrot, which stands on the top.

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Among other monuments I noticed those of a tiger, of a lion, and of deer, bears and wolves. There are many monuments to the favorite dogs of the owner. One of these represented a bulldog and the others were the stone images of two little black and tan terriers. Their grave was surmounted by a pedestal of bronze and a marble column broken in half stood at the rear. On the pedestal I read the words: 'To our Perita Mignon, November 1, 1900," and under the inscription I saw five baskets of flowers. Nearby was a hound which died in 1908, and next it a great marble slab commemorating the death of a rooster. This last was carved with the bas relief of a crowing cock, which made me think of the play "Chanticleer," and it evidently resembled the game bird which lies buried below. The cemetery has also a statue of Brer Rabbit. It represents the cunning animal in stone standing on a block and pointing to a slab at his back upon which is engraved the word "Silencio." The rabbit stands with his fingers on his nose and his ears towards the skies. The bunny whose life he commemorates is buried below and I see by the inscription that he died just fifteen years from the date of my writing.

In addition to these resorts is the Prado, a great park on the outskirts of the town. It has extensive lawns and trees, with beds of flowers and shady walks and drives. This park is rolling and the landscape gardeners have taken advantage of the subtropical climate to give it both the temperate and tropical trees. It has lofty palms; feathery bamboos and flowing shrubs of many varieties. There are lotus flowers upon the lakes and you may walk or ride for miles about through the green, finding new beauties at every step or turn of the wheel.

Near the most of the parks are beautiful villas surrounded by gardens, and there are long streets of fine residences, some of which cost as much as a rich man's house in the states. The architecture of the city is in general after that of the Spanish, but many of the new buildings are French or rather European in style.

The business part of Montevideo are composed of buildings of two and three stories. There are no sky-scrapers and few very large structures. Outside and in the poorer quarters there are many one-story houses and not a few large one-story buildings built around patios. Many of the houses are made of stones quarried nearby. Some are of brick covered with stucco and painted in the brightest of colors. The public buildings are of good size and the same is true of the theaters. The Solis Theater, for instance, will seat 3,000 spectators and it has an area of almost two acres. It was built more than forty years ago and among those who have played or sung in it are Sarah Bernhardt, Patti, Caruso and others. The best of the European artists make tours across the Atlantic to South America, taking in Rio, Montevideo, and Buenos Aires. Such events bring very high prices and the dressing is even more elaborate than that at the American houses. Every man in the orchestra circle will have on white kid gloves in addition to the ordinary dress suit, and the women all wear evening gowns and their necks and heads sparkle with diamonds. It is a common thing for the men to rise in their seats between the acts, and, using their opera glasses, to stare at the women. The latter do not seem to object. The people are fond of the theater. At the several houses of amusement over 2,000 shows are held every year and these are attended by 1,700,000 spectators.

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Among the other fine buildings are the new penitentiary, which is a model of its kind; a new legislative palace, which is now going up; the great station of the Central Uruguay railroad and some business buildings, including the market and hospitals as well as the great university, which is a national institution. The stock exchange is an old building but it is good of its kind, having cost about half as much as the Solis Theater. There are also large banking buildings, most of them belonging to the great financial institutions of Europe, which do a large part of the business of the South American continent. In addition to these is the bank of the republic, which belongs entirely to the state. It has a capital of over $20,000,000 authorized and more than $11,000,000 paid up. It has the right to issue notes and its currency now out amounts to about $25,000,000.

This bank has branches in all the leading towns of the republic. Its president and directors are appointed by the government and it is to a certain extent a government institution. Nevertheless it is run at a profit, its net gain last year being over $2,000,000.

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Among the great private banks there are four belonging to the British, one belonging to the French, another to the Germans and one each to the Spanish and Italians. In addition to these there are new banks known as the French Bank of the River Plate and the Bank of Galicia.

Some of these banks have considerable Uruguayan capital. Among the British banks the London and River Plate Bank is the oldest. Its chief offices are in London, but it has branches throughout this part of the world. It has a capital of about $14,000,000, and in 1912 it paid a dividend of 20 per cent and a special bonus. The British Bank of South America is another of these big institutions which gets fat off of our sister continent. It has a capital of $10,000,000 and a reserve fund of $5,000,000 more. It pays dividends of 12 per cent and a bonus. And then there is the London and Brazilian Bank whose net profits in 1912 were more than $2,500,000 and that on a capital of about $12,000,000, and last is the Anglo-South American Bank, whose capital is $25,000,000 and which has branches throughout Latin America.

Speaking of money matters in Uruguay, this is the only country I have yet visited which is on a solid gold basis. Its currency is always up to par and its dollar is worth about 3 cents more than the American dollar. You cannot get more than 97 cents for one of our dollar bills here, and in cashing my letter of credit to the amount of thirty pounds yesterday I received in return only a few cents over $139. The same draft in the United States would have brought me $145 and had I cashed it at Asuncion, Paraguay, I would have received $2,700 of their debased currency. The Paraguayan dollar is now worth between 5 and 6 cents. When I was there it cost me $90 a day for myself and a similar amount for my stenographer at the leading hotel. Street car fares cost us a dollar and upward, according to distance, and postage on a letter to the United States was 75 cents per half ounce. In Buenos Aires and other parts of the Argentine, the dollar is worth 45 cents of our money. In Bolivia the dollar was worth about 40 cents, while in Chile it was worth only about 20 cents of our money.

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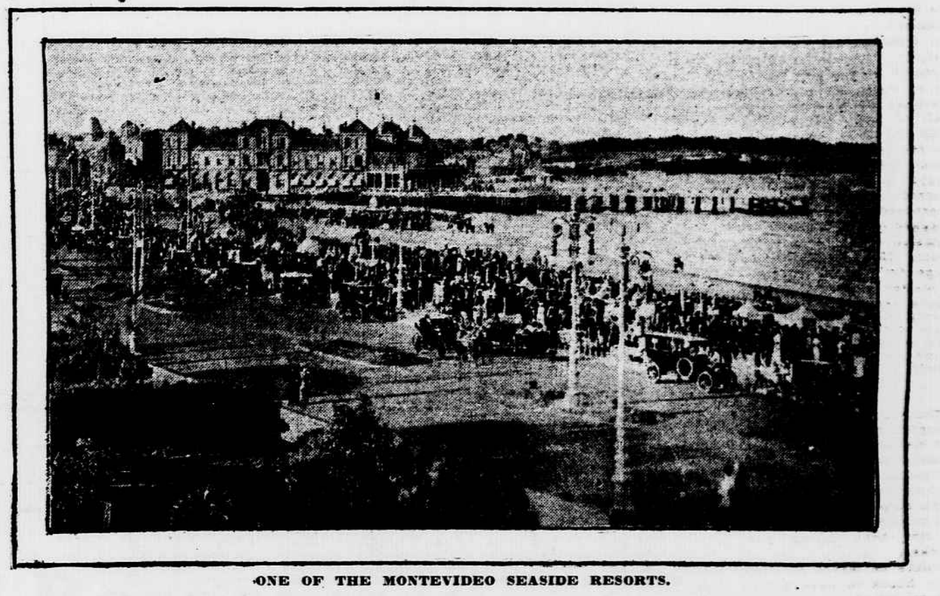
The bank notes of Uruguay are about two-thirds the size of ours. They are of a brown and blue color, and fairly well engraved, but they are not so beautiful as the American bank note, nor do they compare in their artistic effects with the notes of Paraguay, Argentina and other countries, the most of which have their currency made in New York. These notes are manufactured in Germany. As to the smaller denominations of money there are notes for 50 cents and silver dollars and half dollars, as well as nickels, about the size of our quarters. In addition to the five-cent pieces there are two-cent pieces and one-cent pieces, and the prices in the stores correspond. There seems to be no favorite division by decimals and a thing is just as likely to cost 6 cents or 12 cents as 5 cents, 15 cents or a quarter. I know a restaurant, for instance, where you can get a good cup of coffee for 4 cents and a plate of soup for 12 or 14.

FRANK G. CARPENTER.

THE PLAZA INDEPENDENCIA, WHICH COVERS TEN ACRES.



ONE OF THE MONTEVIDEO SEASIDE RESORTS.

U. S. Weather Man Becomes a Fixed and Recognized Institution

THE great American joke about the weather man has become passe. It is now the exception, not the rule, in the humorous columns. The weather man has become a fixed and recognized institution, like the traffic policeman. Or, as Prof. Charles F. Marvin, chief of the United States weather bureau, put it in a recent conversation:

"The public has come to accept the weather service as a matter of course."

"Have you ever tried to measure in dollars and cents what the weather service is worth to the people of the country?" Prof. Marvin was asked.

"No, we have not. Different groups of those benefited at different times have estimated the value to them of timely warnings sent out by the service in particular instances, but it is as impossible to estimate the total saving to agriculture, commerce, navigation and industry in a year through the operations of the weather service as it is to estimate the total savings in the cities of the country through the maintenance of fire departments.

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"Shipping interests have estimated that a single hurricane warning we sent out kept $30,000,000 worth of ships and cargoes in port—and safety—which, save for the warning, would have been put in jeopardy.

"Our frost and cold wave warnings, in these days of scientific agriculture and horticulture, do much good. Orchardists, for example, nowadays on receipt of a frost warning at a critical growing period take steps to heat their orchards artificially by building small open fires at frequent intervals among the trees, thus appreciably raising the temperature of the lower strata of air and preventing the destruction of the blossoms or budding fruit.

"Horticulturists, in one instance, estimated that the saving resulting from a frost warning was in excess of $3,500,000. The value of the orange bloom, vegetables and strawberries protected and saved on a single night in a limited district in Florida, through the instrumentality of warnings of freezing weather sent out by the bureau, was reported at over $100,000. In the citrous districts of California it is reported that fruit to the value of $14,000,000 was saved by taking advantage of warnings issued by the bureau during one cold wave.

"If one tries to calculate the probable saving that results from what we call our river and flood service he will find the figures running so high as to seem absurd.

"So we attempt no calculations of our own in this respect. We leave that to those who derive the benefits, and their frequent testimony to the value of the service is sufficient to our purposes. We do know, however; what the service costs. The annual expenditures of the bureau for all purposes in the course of a year are about $1,600,000, or about one and six-tenths cents per capita. That, we think, is pretty cheap weather insurance.

"No claim is made by the weather bureau that its weather forecasts are infallible. Carefully kept statistics, however, show that in nine cases out of ten, on an average, the forecasts are accurate. That, considering the possibility of error, even when based on the most scientifically gathered data, is a very high percentage of accuracy.

"Men, ever since there were men on the earth, have been trying to forecast weather conditions. Noah in his day and generation was more successful than his fellows and profited accordingly. In the Bible in many places one may read of man's attempt to read in the skies indications of future weather, and of their frequent mistakes. Christ's answer to the Pharisees and Sadducees, who asked Him to show them a sign from heaven, as recorded in the sixteenth chapter of St. Matthew, indicates how common was the practice in those days. Christ, as reported by St. Matthew, said to them:

"'When it is evening, ye say "It will be fair weather, for the sky is red," and in the morning, "It will be foul weather today, for the sky is red and lowering." O, ye hypocrites, ye can discern the face of the sky; but can ye not discern the signs of the times?'

"Those to whom foreknowledge of the weather is essential to the conduct of their business have learned to place much dependence on our forecast service. From them come no complaints. They recognize conditions and do not expect 100 per cent of accuracy. Such complaints as we do receive directly or through the newspapers are for the most part those of persons who have suffered merely in individual comfort, not in dollars and cents.

"Constantly the number of those who make practical use of the weather service is increasing. This is due not only to a larger understanding of the service we offer, but also to remarkable strides that have been made in the dissemination of the information we have. The wireless has become a powerful aid in this respect, particularly in spreading the news of forthcoming storms.

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"When we give a warning to the great navy wireless station at Arlington, that station broadcasts it over the continent, the ocean and the Great Lakes, reaching not only all land stations, but ships far off shore as well. It makes practically an instantaneous service. The large new radio station the navy is installing at Chicago will be of large benefit, particularly in the region of the great lakes. And as wireless comes into more general use it will extend the weather service."

"How is the service organized to obtain the data on which forecasts are made?"

"Simultaneous observations of local weather conditions are taken daily at 8 a.m. and 8 p.m., seventy-fifth meridian time, at about 200 regular observing stations scattered throughout the United States and the West Indies. Canada and Mexico have weather services similar to our own, and their stations interchange with our own.

"From these widely scattered stations the results of the observations are at once transmitted by telegraph—wireless and wire—to the central office at Washington and to the other forecast centers. Not only do they come from the shore stations in the West Indies, but from vessels at sea in the Caribbean and in the gulf. From stations in far-off Alaska the navy wireless transmits reports.

"Forecast centers, in addition to Washington, are maintained at Chicago, New Orleans, Denver, Portland, Oregon and San Francisco, each center embracing several states in its territory.

"As the basic information pours in it is charted for study by the trained forecaster in charge, the chart giving him an accurate picture of weather conditions in all the great area covered by the reports. From these data the forecaster, by comparison with preceding reports, is able to trace the paths of storm areas from the time of their appearance to the moment of observation and approximately determine and forecast their subsequent courses and the attendant weather conditions.

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"Formerly the forecasts prepared at the Chicago and Denver districts were sent out only in the morning. This has been changed, so that these districts now issue night forecasts also. Immediately on the completion of the forecast the results are telegraphed from the forecast centers to about 1,600 principal distributing points, where they are further disseminated by telegraph, telephone, wireless and mail. About 90,000 addresses are reached daily by mail, and the forecasts also are available to more than 5,500,000 telephone subscribers within an hour of the time of issue. In addition the newspapers spread the information widely.

"For maritime service, as I have said, the navy and private wireless give practically instantaneous delivery in quarters where most needed.

"By flags in day time and lanterns at night, the shore stations signal the storm warnings to all vessels not equipped with wireless. On the great lakes, no less than on the ocean, this service is of vast importance, for on the lakes the danger is even greater than on the ocean, for lake craft are navigating in a more confined area. Detroit is the center for the distribution of storm forecasts in the lake region. Every step that human ingenuity can suggest is being taken to insure speed and wide dissemination in delivery.

"Our greater storms in the United States move in approximately the same courses. For example, we look upon the region of the West Indies as the breeder of hurricanes, for from that region they move up the coast. Hence the establishment of our West Indian stations and the steps we take to obtain information from ships at sea.

"Land storms over the greater area of the United States as a rule are first reported in western Canada in the plains country east of the main range of the Rocky mountains. They sweep down in a general southeasterly direction. These daily weather maps for a week in July, for example, will show the course of the recent storm that swept down from Canada, traversed the upper Mississippi river valley on a curved path, and returned to Canada by way of western New York." Medicine Hat, famed in story and newspaper report as the breeder of storms, was the initial spot on the map for the appearance of this particular storm.

Prof. Marvin exhibited one by one the maps covering the days of the atmospheric disturbance.

"Do all of storms in this class come from Medicine Hat?" was asked.

"None of them starts at Medicine Hat," said Prof. Marvin. "Medicine Hat gets its fame as a breeder of storm merely from the circumstance that it is on the margin of our map. If we had stations farther up in the course of the storm we would note it that much earlier.

"As a matter of fact we would be much better off if we could secure data on the circulation of the atmosphere over the entire northern hemisphere, and prepare a complete weather map daily for that hemisphere. Weather is made by the circulation of the atmosphere on this terrestrial body, not by spots on the sun or other remote causes, and weather predictions are based on information regarding the activities of our atmosphere.

"The more of the world's surface we can cover by reporting stations, the better knowledge we will have of atmospheric movements. At present we are confined to the area I have mentioned.

"One of the results of the present war is to limit our information. Before the war began we were building up a system of interchange with other countries that was giving us the material for a real northern hemisphere map, but, because of interruptions by reason of the war, we have had to suspend making that map. Then we were receiving daily reports from the Azores Islands, Iceland, the Faroe Islands, Great Britain, France, Portugal, European and Asiatic Russia, China, Japan, the Philippines, Hawaii and Alaska, but since we no longer receive reports from the countries at war we are doing the best we can with the reports we can obtain.

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"While the weather service proper has to do with safeguarding property, that portion of it which has to do with river and flood observations has a direct bearing on the safeguarding of human life. The river and flood service is organized with its principal headquarters at Washington and subsidiary district centers at advantageous points on the respective rivers along which the service is maintained. About sixty district centers are maintained outside of Washington.

"Measurements of precipitation on the headwaters of the stream and observations of the height of water on the gauge at up-stream points are collected by telegraph or telephone and serve as the basis for warnings of floods in the lower reaches of the stream. The occurence of disastrous floods within the last few years has emphasized the importance of accurate flood warnings.

"Aside from these several activities the weather bureau is constantly engaged in research work. One branch of this work has to do with aerology or the study of the upper stratas of our atmosphere, and the other with solar radiation. This latter has for its object the measurement of the solar radiation received at the surface of the earth at different seasons of the year and under different atmospheric conditions.

"Observing stations for measuring the intensity of direct solar radiation are maintained at Washington, in co-operation with the American University; at Madison, Wis., in co-operation with the University of Wisconsin; at Lincoln, Neb., in co-operation with the University of Nebraska, and at the weather bureau office, Santa Fe, N. M.

"What is the purpose; to put a meter on the sun to see that it is giving us all the heat we are entitled to?"

"You might put it that way. The amount of heat actually received from the sun is the basis for the growth of all vegetation. Solar and sky radiation have an important bearing on all problems of agriculture, as well as being of fundamental importance to meteorologists, since all atmospheric movements and, in consequence, all weather changes are dependent upon the heat received from the sun.

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"If the heat of the sun upon all parts of the earth was shut off entirely our atmosphere would be reduced to a uniform calm. There would be no weather as we know weather.

"In winter we get a higher intensity of radiant energy from the sun, because the earth is nearer the sun at that season, nevertheless, rays of the sun fall at a small angle over the northern hemisphere and the heating effect is relatively small. In summer the rays strike at a higher angle of incidence and so have greater heating effect. The work we are carrying on consists in measuring the heat energy received per square yard of horizontal service at different spots and at different times.

"The studies of aerology once were conducted chiefly from Mount Weather, Va., near Washington, and elsewhere, but now have been for the most part consolidated at Drexel, Neb., near Omaha, where conditions are better. These studies are conducted primarily with kites and free balloons, and have been going on for several years. From such studies we learn about conditions in the upper or free air.

"One thing that has been determined is that the temperature diminishes progressively until, at a height of about 30,000 feet it is down to between 40 and 50 degrees below zero. In higher altitudes, however, there is but little diminution of temperature; and in fact, under some conditions, the temperature actually becomes higher.

"Self-recording instruments are sent up in both the kites and the free balloons. The balloons are inflated with hydrogen and turned loose, arising until they burst, when the instruments, attached to a little parachute, descend in safety. They are tagged with directions requesting the finder to return them to the station. The percentage of recovery of these balloons is very high. Instruments have been recovered from balloons that reached altitudes from 15 to 20 miles.

"The value of this aerological work does not lie so much in the current use of the data, though many of the observations are individually useful, as in the light thrown by these data on the whole subject of dynamic meteorology."

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Although the service furnished to the people of the country by the weather bureau is now taken as a matter of course, it is all a comparatively recent development. Other nations had weather bureaus before the United States did; none has one so large or so useful in so many different lines. Mariners and agriculturists, tiring of the patent medicine almanac forecasts, agitated for some sort of a government service until, in 1870, Congress by joint resolution required the Secretary of War to have weather observations taken at interior and coastal military stations, and to transmit information, "by magnetic telegraphic and marine signals" the approach and force of storms. The next year the work of reporting the stages of waters in the rivers was added.

Thus there grew up in the Signal Corps of the Army the first weather service. Under the direction of Brig. Gen. A. W. Greely, chief signal officer, it expanded and became more useful. Then, in October, 1890, Congress transferred it complete to the Department of Agriculture, where it has since remained.

Before this transfer, however, Prof. Marvin was a part and parcel of the organization. In the early 80s the building up of the service required civilian scientists in its organization.

In 1884 Charles F. Marvin, a young Ohioan, who had been educated in the public schools of Columbus and at the Ohio State University, passed the civil service examination and was appointed a junior professor in the service. Four years later he was selected by Gen. Greely, then chief signal officer, as head of the instrument division, which position he held until he took office as chief of the bureau August 4, 1913.

* * *

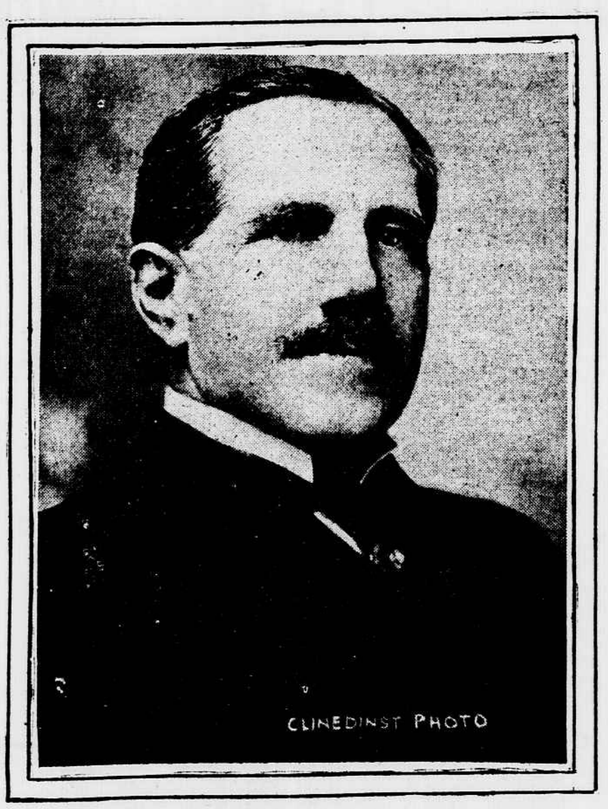
Prof. Marvin has designed and improved many of the instruments used today by the weather bureau. In addition he has conducted important investigations for measuring the moisture of the air, for deriving the velocity of the wind from the indications of anemometers, and for the use of kites in obtaining records of temperature, pressure and other conditions in the upper air. Improvements effected by Prof. Marvin in the construction of kites and the recording instruments used on them have been employed in Europe in upper air observations.

He was chosen chief of the bureau in an unusual manner. The National Academy of Sciences, at its meeting in Washington early in the administration of President Wilson, suggested to the President that it be consulted in the choice of a head for this eminently scientific bureau. The President acquiesced. Thereupon the academy appointed a subcommittee to consider the matter.

This consisted of Prof. W. W. Campbell of the Lick Observatory, Dr. Arthur L. Day, home secretary of the academy; Prof. E. L. Nichols of Cornell University, Prof. E. C. Pickering of Harvard, Dr. Ira Remsen of Johns Hopkins, Dr. Elihu Thompson of Swampscott, Mass.; Prof. C. E. Van Hise of the University of Wisconsin, Dr. William H. Welch, president of the academy, and Dr. R. S. Woodward of the Carnegie Institution, Washington.

Twenty-six names were considered by the committee, of which four were selected. Of these Prof. Marvin finally was chosen, the choice meeting the approval of President Wilson, members of the cabinet and the members of the National Academy.

ASHMUN BROWN.



PROF. CHARLES F. MARVIN,
Chief of the United States weather bureau.

An Edison Story.

ACCORDING to a friend, Thomas A. Edison is of the opinion that it was anger that first turned him toward inventing the incandescent light. How it happened is related by the friend, who says:

"That was, of course, in the early days, and Mr. Edison was then quite the inventor that one reads of—poor, enthusiastic, never sleeping. He lived in a small house, innocent of anything approaching a laboratory; scientific devices were in every room, and all the money went for experiments. Then one day came the crisis in the guise of the collector for the gas company. He had been to the house often, but Edison, hardly heeding his calls, had waved him away, saying, 'Don't bother me.'

"On this last call the collector's instructions were peremptory. He must turn off the gas.

"'But, man,' protested Edison, 'I can't stop this experiment tonight. I'll pay the bill, of course. I didn't know about it. I must finish this work without interruption.'

"But this appeal had no effect upon the collector, and the lights went out.

"'That night, as I sat helpless in the darkness,' says the inventor, 'I swore that I would put the gas company out of business. I haven't quite done that, but I did the best I could.'"